

REMARKS

In the Office Action of August 25, 2003, Claims 1 - 3 were rejected. No claim was allowed. In response, Claims 1 - 2 are amended. Reexamination and reconsideration are respectfully requested in view of the foregoing amendments and the following remarks.

Rejection of Claim 1 under 35 U.S.C. §103(a) over Komino in view of Marks

Claim 1 was rejected under 35 U.S.C. §103(a) as anticipated by Komino (U.S. Patent No. 5,769,952) in view of Marks (U.S. Patent No. 6,391,148). The Examiner alleges that Komino teaches an apparatus for processing a specimen comprising an etching process unit that is supplied with a gas to produce a plasma, a rinsing unit and a dryer unit for drying. The Examiner further alleges that Komino teaches that the operations in the etching process unit and the rinsing and/or drying can take place in succession and that the apparatus of Komino may be constructed to comprise plural deposition units that may be used continuously, along with the etching, rinsing and drying units, and that this suggests that the apparatus would be capable of processing a substrate with multiple layers. The Examiner acknowledges that Komino fail to teach the apparatus capable of processing a specimen while controlling the temperature of the substrate below 200 °C. With respect to the ~~limitations in Claim 1 drawn to an intended method to be performed using the~~ claimed apparatus, the Examiner alleges that the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus if the prior art apparatus teaches all the structural limitations of the claim.

The Examiner alleges that Marks teaches an etching apparatus comprising a temperature control mechanism for the purpose of bringing the wafer temperature to the appropriate range for etching of the relevant layer and that the control mechanism is capable of control at a temperature less than 200 °C. The Examiner further alleges that Marks teaches using a low pressure, high density, low ion energy plasma for delivering superior etching results. The Examiner alleges that it would have been obvious to have provided an etching apparatus with a temperature control mechanism in Komino in order to bring the wafer temperature to the appropriate range for etching of the relevant layer as taught by Marks and that it would have been obvious to have provided an apparatus capable of plasma processing conditions such as low pressure, high density and low ion energy in Komino in order to deliver superior etching results as taught by Marks.

This rejection is traversed as it may be applied to Claim 1 as amended herein. In particular, independent Claim 1 specifies that the processing apparatus includes an etching process unit, a rinsing unit including a rinsing cup and a dryer unit including a hot plate, which are arranged in a unitary apparatus to allow immediate successive treatments therebetween. This arrangement is described, for example, explained on page 5, line 15 though page 8, line 13 of the specification and in particular, on page 7, line 26 through page 8, line 13. In particular, the apparatus is arranged so that removal of the corrosive materials deposited or remaining on the etched surface of the specimen can be achieved by the rinsing unit immediately after the etching without requiring conventional baking processes for removing residual chlorine, since conventional baking may deteriorate the magnetic property of the specimen. The etching process unit of the present invention therefore is

defined as being capable of etching of the specimen under a low specimen temperature of below 200 °C by making use of a high density gas plasma with a low ion energy and further, the hot plate is defined as performing drying at a temperature of below 200 °C immediately after the rinsing.

Komino does not disclose that its apparatus is capable of performing etching or drying at a temperature of below 200 °C. Further, neither Komino nor Marks disclose an apparatus having a drying unit that includes a hot plate that is controlled to keep the temperature of the specimen being dried to below 200 °C.

Moreover, it is respectfully submitted that the Marks patent would not have been available as a reference as of the priority filing date of the present application. Marks has a filing date of January 12, 2001, whereas in the present application applicants have made a claim for foreign priority under 35 U.S.C. §119 based on Japanese Patent Application No. 11-288657, filed in Japan on October 8, 1999. Accordingly, Marks cannot be considered as prior art.

Accordingly, it is respectfully submitted that the Claim 1 would not have been obvious over Komino and Marks. Further, since Komino alone does not teach all of the limitations of the Claim 1, the rejection is overcome by the removal of Marks as a prior art reference.

Rejection of Claims 2 and 3 under 35 U.S.C. §103(a) over Komino and Marks in view of Kondo and Kameyama

Claims 2 and 3 were rejected under 35 U.S.C. §103(a) as obvious over Komino and Marks in view of Kondo (U.S. Patent No. 5,303,671) and Kameyama (JP 60-183996). The Examiner alleges that in addition to what is described above,

Komino discloses an atmospheric loader, a vacuum transport chamber having a vacuum transport robot, unload and loadlock chambers connecting between the atmospheric loader and the vacuum transport chamber for delivering the specimen, wherein the vacuum transport chamber is connected to the etching process chamber of the apparatus and the atmospheric loader is connected to the rinsing unit and drying unit. Regarding Claim 3, the Examiner alleges that Komino teaches that any number of the three processing units 10A - 10C may be etching chambers. The Examiner acknowledges that Komino and Marks do not teach a rinsing cup in the rinsing unit and a hot plate in the drying unit. The Examiner alleges that Kondo teaches the use of a hot plate for the purpose of heating a specimen after washing. The Examiner takes the position that it would have been obvious to have provided a hot plate in the drying unit of Komino in order to heat a specimen after washing as taught by Komino. The Examiner further alleges that Kameyama teaches the use of a rinsing cup for the purpose of reducing the adhesion of dust, to use only a small amount of a treating liquid and to equalize the extent of a treatment. The Examiner alleges that it would have been obvious to have provided a rinsing cup in the rinsing unit of Komino in order to reduce the adhesion of dust, use only a small amount of treating liquid and equalize the extent of the treatment as taught by Kameyama.

This rejection is respectfully traversed As discussed above, the etching process unit of the present invention is defined as being capable of etching of the specimen under a low specimen temperature of below 200 °C by making use of a high density gas plasma with a low ion energy, and the drying unit is defined as including a hot plate that performs performing drying at a temperature of below 200 °C immediately after the rinsing.

Komino, Kondo and Kameyama do not disclose that their apparatus are capable of performing etching or drying at a temperature of below 200 °C. Moreover, as discussed above, Marks cannot be considered prior art against the present application.

Accordingly, it is respectfully submitted that Claims 2 and 3 would not have been obvious over Komino, Marks, Kondo or Kameyama, alone or in combination. Further, since Komino, Kondo and Kameyama do not teach all of the limitations of Claim 2 and 3, the rejection is overcome by the removal of Marks as a prior art reference.

Statement of Substance of Interview

Applicants wish to thank Examiner Moore for the courtesy of a telephone interview with the undersigned on November 21, 2003. During the interview, Claims 1 - 3 and the cited references, Komino, Marks, Kondo and Kameyama were discussed. In particular, a proposed amendment to Claim 1 to include a rinsing cup in the rinsing unit and a hot plate in the drying unit was discussed. Further, a proposed amendment to define the hot plate as being controlled to a temperature below 200 °C was discussed. It was pointed out to the Examiner that Marks cannot be considered prior art with respect to the present application. The undersigned argued that the remaining references do not teach an etching process unit that can be controlled to a temperature below 200 °C and a hot plate that is controlled to a temperature below 200 °C. The Examiner agreed to consider the Applicant's arguments upon the filing of a written response.

Conclusion

In view of the foregoing amendments and remarks, it is respectfully submitted that Claims 1 - 3 are in condition for allowance. Favorable reconsideration is respectfully requested.

Should the Examiner believe that anything further is necessary to place this application in condition for allowance, the Examiner is requested to contact applicants' undersigned attorney at the telephone number listed below.

Kindly charge any additional fees due, or credit overpayment of fees, to Deposit Account No. 01-2135 (503.38156VX1).

Respectfully submitted,
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